

REMARKS

I. ELECTION/RESTRICTIONS

In Paragraphs 2 and 3 of the Office Action, the Examiner indicated that her restriction is FINAL and that, based on Applicant's election of Species B, claims 7-10, 17-28 and 32-35 are therefore withdrawn from consideration. The Applicant requests that this holding be reconsidered in view of the following discussion.

In paragraph 2 of the Office Action, it was asserted that the Applicant had traversed the Examiner's restriction on the grounds that "Species C comprised of Figures 7A, 7B, 8, 9 and 10 should be grouped with Species B comprised of Figures 5 and 6." The Applicant respectfully submits that this is a mischaracterization of the argument presented by the Applicant in the Response to Restriction filed November 22, 2004. The Applicant had actually argued that Figures 5 and 6 should not be grouped together because Figure 5 depicts a generalized system while Figure 6 (like each of Figures 7-9) depicts a subspecies of the generalized system. Figure 5 alone thus constitutes a species generic to the subspecies of Figures 6-9.

In a telephone interview on February 22, 2005, the undersigned discussed this point with the Examiner. The Applicant appreciates the courtesy and assistance extended by the Examiner in this interview. After a discussion of the basis for the Applicant's traversal, the Examiner agreed that she had not recognized the point of the Applicant's argument and, as noted in the Interview Summary mailed March 2, 2005, agreed to reconsider her position and issue a subsequent non-final office action upon the submission of this response.

In summary, the Applicant submits that Figure 5 is a depiction of a generalized species that is generic to the sub-species of Figures 6-9. The Applicant further submits that all of claims 1-35 read on the species of Figure 5. The Applicant therefore submits that all of claims 1-35 should be examined.

II. OBJECTION TO THE DRAWINGS

In Paragraph 4 of the Office Action, the drawings were objected to for failure to include a reference number for element 468, which is identified in paragraph 0073 as being associated with "conductive jumpers" interconnecting the conductive plates 466.

A replacement drawing for Figure 8 is enclosed herewith. The replacement drawing includes a reference number and leader identifying element 468. The Applicant therefore requests that the objection to the drawings be withdrawn.

III. OBJECTION TO THE SPECIFICATION

In Paragraph 5 of the Office Action, the specification was objected to for (1) failure to identify the issued patent number for the application identified in paragraph 0001; and (2) an erroneous identification of the spring element 410 in paragraph 0074. Both of these items have been addressed through the amendments to the specification appearing on page 3 of this paper. The Applicant has also added to paragraph 1 a reference to related application no. 10/10/850,209, which is a continuation of the parent to the present application.

In view of the amendments to the specification, the Applicant respectfully requests that the objection to the specification be withdrawn.

IV. OBJECTION TO THE CLAIMS

In Paragraph 6 of the Office Action, claim 1 was objected to as a result of the inadvertent inclusion of the word "a" at the end of line 9. Claim 1 has been amended to correct this typographical error. The Applicant therefore requests that the objection to the claims be withdrawn.

V. DOUBLE PATENTING

A. Statutory Double Patenting rejection of Claims 1-3 and 6

In paragraph 7 of the Office Action, claims 1-3 and 6 were rejected under 35 U.S.C. 101 as assertedly claiming the same invention as claims 1-4 of U.S. Patent No. 6,752,250 ('250 Patent). The Applicant respectfully traverses this rejection.

The Applicant submits that claim 1 of the present application is clearly different from claim 1 of the '250 Patent. For example, claim 1 of the '250 Patent includes at least one element that is not recited in claim 1 of the present application. Specifically, the recharging arrangement of claim 1 of the '250 Patent recites "means for converting vibratory motion to electrical energy for storage in the rechargeable power supply" which is not recited in claim 1 of the present application.

The above differences were discussed with the Examiner during the telephone interview of February 22, 2005. As discussed in the Interview Summary, the Examiner agreed that claims 1-3 and 6 should not have been rejected for double patenting under 35 U.S.C. 101. The Applicant therefore requests that this rejection be withdrawn.

B. Non-Statutory Double Patenting rejection of Claims 4, 11-14, 16 and 29-31

In paragraph 10 of the Office Action, claims 4, 11-14, 16 and 29-31 were rejected for obviousness-type double patenting over as claims 1-5 of the '250 Patent.

As noted in paragraph 9 of the Office Action, this rejection may be overcome through the filing of a terminal disclaimer. In order to advance the prosecution of the present application and without conceding the validity of the Examiner's rejection, the Applicant is enclosing a terminal disclaimer with respect to any term extending beyond the expiration of co-owned U.S. Patent No. 6,752,250. The Applicant therefore requests that the rejection of claims 4, 11-14, 16 and 29-31 be withdrawn.

VI. THE CLAIMS ARE PATENTABLE OVER THE PRIOR ART

A. Paragraph 12 Rejection of Claims 1, 11 and 29

In paragraph 7 of the Office Action, Claims 1, 11 and 29 were rejected under 35 U.S.C. 102(b) as assertedly anticipated by Murty et al., U.S. Patent No. 5,091,679 (Murty Patent). The Applicant respectfully traverses this rejection.

1. Claims 1, 11 and 18

Claim 1 recites a shock and vibration isolation system for mounting equipment to a base wall. The system comprises a load plate for attachment to the equipment and a base plate for attachment to the base wall, the base plate being substantially parallel to the

load plate. The system further comprises a spring arrangement intermediate the load plate and the base plate to bias the load plate and the base plate in a separated relationship. A semi-active damper is disposed intermediate the load plate and the base plate and is adapted for providing a selectively variable reaction force to the load plate and the base plate responsive to a relative displacement of the load plate with respect to the base plate. A damper controller is operatively connected to the semi-active damper for controlling the reaction force applied to the load plate and the base plate. The damper controller includes a rechargeable power supply. The system also comprises a recharging arrangement in electrical communication with the rechargeable power supply. The recharging arrangement is mounted to one of the base plate and the load plate and is adapted for converting vibratory motion to electrical energy for storage in the rechargeable power supply.

Claim 11 recites a shock and vibration isolation system comprising a load plate, a base plate and a spring arrangement similar to those of claim 1. The system also comprises semi-active damping means for providing a selectively variable reaction force to the load plate and the base plate responsive to a relative displacement of the load plate with respect to the base plate, damping control means for controlling the reaction force applied to the load plate and the base plate by the semi-active damping means, a rechargeable power supply in communication with the damping control means and the semi-active damping means, and recharging means for charging the rechargeable power supply. The recharging means is mounted to one of the base plate and the load plate and includes means for converting vibratory motion to electrical energy for storage in the rechargeable power supply.

Claim 29 recites a self-powered semi-active damping system comprising a semi-active damper disposable intermediate a load and a base wall. The a semi-active damper being adapted for providing a selectively variable reaction force to the load and the base wall responsive to a relative displacement of the load with respect to the base wall. The system also comprises a damper controller operatively connected to the semi-active damper for controlling the reaction force applied to the load and the base wall, a

rechargeable power supply operably connected to the damper controller and the semi-active damper, and a recharging arrangement in electrical communication with the rechargeable power supply. The recharging arrangement is mountable to one of the base wall and the load and is adapted for converting vibratory motion to electrical energy for storage in the rechargeable power supply.

2. The Murty Patent

The Murty Patent is directed to a fully active motor vehicle suspension using rotary brushless dynamoelectric actuators rather than hydraulic actuators. Murty Patent, col. 1, line 57 to col. 2, line 5. The vehicle has an electric power source and a sprung mass suspended on a plurality of unsprung masses, with each unsprung mass connected to the sprung mass through an actuator comprising a rotary brushless dynamoelectric machine. Id. The dynamoelectric machine has a rotor engaged with a rotary/linear motion converter for conversion between dynamoelectric machine torque and linear actuator force. Id. Each actuator further comprises a dynamoelectric machine control circuit effective to control current between the electric power source and the dynamoelectric machine in response to an input control signal to produce a desired actuator force providing motoring or generating action by the dynamoelectric machine. Id.

Each actuator comprises a multi-phase, brushless dynamoelectric machine and a linear/rotary motion converter. Murty Patent, col. 4, line 5-25. The linear/rotary motion converter is a ball nut and screw apparatus in which the ball nut is connected by a hollow, rigid connector 203 to a lower mounting member 204, which may be connected to a suspension member 5 as shown in Figures 1 and 2. Id. A screw 205 is rotatably attached through bearing assemblies 206 and 207 to an upper mounting member 208, which may be connected to sprung mass 2, as also shown in Figures 1 and 2. Id. Screw 205 and ball nut 202 thus act to convert the extension and compression of the actuator with linear rebound and jounce movement of sprung mass 2 and unsprung mass 3 to a rotational movement of the rotor of dynamoelectric machine with extension corresponding to

rotation in one direction and compression corresponding to rotation in the opposite direction. Id.

In operation, each of the brushless dynamoelectric machines might be using energy in motoring mode to drive suspension apparatus or generating energy in generating mode as it is driven by suspension apparatus. Murty Patent, col. 9, line 66 to col. 10, line 27. The electric power generated by one of the dynamoelectric machines in generating mode may be used to power one or more of the other machines in motoring mode. Id. Any excess power may be stored in storage capacitors. Id. If, however, the power required by the machines motoring mode exceeds the power available from the machines in generating mode, power may be drawn from the capacitors or from a battery. Id. If the capacitors are left charged above 48 volts for any appreciable time, they will tend to recharge battery at a limited rate through resistor. Id.

3. The Features of Claims 1, 11 and 18 Are Not Disclosed By the Murty Patent

The Applicant respectfully submits that the Murty Patent does not disclose the features of any of independent claims 1, 11 and 18. For example, the Murty patent does not disclose a system comprising a semi-active damper. The Murty Patent discloses an active damping system having actuators that may be used in an active damping control mode that uses electric power or in an essentially passive damping mode that generates electric power. Throughout the Murty Patent, it is emphasized that the actuators ("dynamoelectric machines") are used to provide active control. There is no suggestion in the Murty Patent that the actuators be used in a semi-active mode.

Further, the Murty Patent does not disclose a separate charging mechanism apart from the actuators (dynamoelectric machines) themselves. When the damping mechanisms of the actuators are not being used in their active mode, they are used to generate power, which may be stored in a capacitor for later use during the active mode. Each of the systems of claims 1, 11 and 29 recite a recharging arrangement (recharging means) that is a separate element from the semi-active damping means. There is no disclosure of such a separate arrangement in the Murty Patent.

The Applicant also notes that in order to function as electricity generators, the dynamoelectric machines must be attached to both the base and the load.

For at least these reasons, the Applicant respectfully submits that the Murty Patent does not anticipate claims 1, 11 and 29 and that the rejection of these claims under 35 U.S.C. 102(b) should be withdrawn.

B. Paragraph 13 Rejection of Claims 1-5, 11-15, 29 and 30

In paragraph 13 of the Office Action, claims 1-5, 11-15, 29 and 30 were rejected under 35 U.S.C. 103(a) as being assertedly unpatentable over Catanzarite, U.S. Patent No. 5,652,704 (Catanzarite Patent) in view of the Murty Patent. The Applicant respectfully traverses this rejection.

1. The Catanzarite Patent

The Catanzarite Patent is directed to a seat suspension system using a controllable fluid damper. Catanzarite Patent, Abstract. The seat is mounted on a frame by a suspension system that includes a spring means and a support means, the spring means being an adjustable air spring and the support means being a scissors mount. Catanzarite Patent, col. 2, lines 8-15. The controllable damper is mounted in parallel with the spring means and the support means, being connected on one end to the seat and on the other to the frame. Catanzarite Patent, col. 2, lines 22-24. The controllable fluid damper may be of either the ER or MR types but is preferably of the MR type. Catanzarite Patent, col. 2, lines 37-40.

The controllable seat damper system includes a primary seat position sensor to enable the displacement rate of the seat to be determined, an electronic controller for performing the rate calculation and sending a control signal to the damper, and a wiring harness interconnecting these elements with each other and at least some of the components with a battery or similar source of current. Col. 3, lines 11-18. The controller is preferably an 8-bit micro-processing computer. Col. 3, lines 5-6. The micro-processor controller determines an appropriate damping level and the required current level needed in the damper to produce that level of damping using a particular control method. Catanzarite Patent, col. 4, lines 3-13. The system can employ any

control method such as skyhook, or deflection control. Id. However, a particularly effective control system uses a rate control method that uses the rate and direction of seat displacement to determine the input to the damper. Id. In this method, the output force of the damper is set to a desired value determined by the values input for filter frequency and compression gain. Catanzarite Patent, col. 4, lines 52-55.

2. The Features of Claims 1, 11, 29 Are Not Taught, Disclosed or Suggested in the Combination Teachings of the Catanzarite and Murty Patents

The features of independent claims 1, 11 and 29 were described above in Section VI(A)(1).

As noted by the Examiner on page 9 of the Office Action, the Catanzarite Patent does not teach, disclose or suggest all the features of claims 1, 11 and 29. The Applicant agrees with the Examiner that, at the least, the Catanzarite patent fails to disclose a shock and vibration isolation system having a recharging arrangement mounted to one of the base plate and the load plate and being adapted for converting vibratory motion to electrical energy for storage in a rechargeable power supply.

The Applicant respectfully submits, however, that the Murty Patent does not cure the deficiencies of the Catanzarite Patent with respect to a recharging arrangement.

As noted above, the Murty Patent does not disclose a separate charging mechanism apart from the actuators (dynamoelectric machines) themselves. Each of the systems of claims 1, 11 and 29 recite a recharging arrangement (recharging means) that is a separate element from the semi-active damping means. There is no disclosure or suggestion of such a separate arrangement in the Murty Patent.

For at least the above reasons, the Applicant respectfully submits that the claims 1, 11 and 29 are patentable over the combined teachings of the Catanzarite and Murty Patents. The Applicant therefore requests that the rejection of claims 1, 11 and 29 under 35 U.S.C. 103(a) be withdrawn.

3. Claims 2-5, 12-15 and 30

Claims 2-5, 12-15 and 30 are each dependent on one of claims 1, 11 and 29, which have been shown to be patentable over the cited combination of the Catanzarite

and Murty Patents. The Applicant respectfully submits that, because they include all the features of the claims upon which they depend, claims 2-5, 12-15 and 30 are also patentable over the combined teachings of the Catanzarite and Murty Patents. The Applicant therefore requests that the rejection of claims 2-5, 12-15 and 30 under 35 U.S.C. 103(a) be withdrawn.

III. CONCLUSION

For at least the above reasons, the Applicant respectfully submits that all of claims 1-35 should be examined and that all of these claims are in condition for allowance. The Applicant therefore requests that claims 1-35 be examined, allowed and passed to issue.

Should the Examiner believe anything further is desirable in order to place the Application in even better condition for allowance, the Examiner is invited to contact the Applicant's undersigned representative.

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Respectfully submitted,



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In the Drawings

Please amend Figure 8 in accordance with the replacement drawing submitted herewith.

This replacement drawing adds reference number 468 to the previously submitted drawing.